

DAYLIGHT BEFORE SUNRISE.

IN the last Tract we saw Astronomy demonstrating our need of a revelation from God. In this we shall see how it illustrates and confirms that revelation. Seen through the telescope, the Bible glows with celestial splendor. Even its cloudy mysteries are displayed as clouds of light, and its long-misunderstood phrases are resolved, by a scientific investigation, into galaxies of brilliant truths, proclaiming to the philosopher that the Book which describes them is as truly the Word of God, as the heavens which it describes are his handiwork.

If, once in a century, a profound practical astronomer is found denying the inspiration of the Bible, he will either acknowledge, or discover himself, not familiar with its contents. For the most part, the charges brought against the Bible, of contradicting the facts of Astronomy, are based upon misstatements and mistakes of its teachings, and so do not fall within the range of the telescope, or the department of the observatory. The Sabbath-school teacher, and not the astronomer, is the proper person to correct such errors. A few months' instruction, in the Bible class of any well conducted Sabbath-school, would save some of our popular anti-Bible lecturers from the sin of misrepresenting the Word of God, and the shame of hearing children laugh at their blunders.

A favorite field for the display of their knowledge of science, and ignorance of the art of reading, by our modern infidels, is the Bible account of creation, in the first chapter of Genesis, which is alleged to be utterly irreconcilable with the known facts of Astronomy and Geology. Leaving the latter out of view, for the present, the astronomical objections may all be arranged under four heads. First, that the Bible account of the creation of man, only some six or seven thousand years ago, must be false—because the records of astronomical observations, taken more than seventeen thousand years ago, by the Hindoos and Egyptians, are still in existence, and have been verified. Second, that the light of some of the stars, now shining upon us, and especially of some of the distant nebulae, must have left them millions of years ago, to have traveled over the vast space which separates them from us, and be visible on our globe now; whereas, the Bible teaches that

the universe was created only some six or seven thousand years ago. Third, that the Bible represents God as creating the sky a solid crystal, or metallic sphere, or hemisphere (they are not agreed which), to which the stars are fastened, and with which they revolve round the earth; which, every schoolboy knows to be absurd. Fourth, that the Bible represents God as creating the Sun and Moon only two days before Adam, and as creating light before the Sun; which is also held to be absurd.

1. The first of these objections—that the Hindoos and Egyptians made astronomical observations thousands of years before Adam, and that the accuracy of these observations has been verified by modern calculations—is *simply untrue*. No such observations were ever made. The pretended records of such have been proved, in the case of the Hindoo astronomy, to be forgeries, and in the case of the Egyptian records, blunders of the discoverers. There is not an authentic uninspired astronomical observation extant for three thousand years after Adam.

The objection, however, is worth noticing, and its history worth remembering, as a specimen of the way in which ignorant men swallow impudent falsehoods, if they only seem to contradict the Word of Truth. When the labors of Oriental Scholars had made the Vedas and Shasters—the sacred books of the Hindoos—accessible to European philosophers, a wonderful shout was raised among infidels. “Here,” it was said, “is the true chronology. We always knew that man was not a degenerate creature, fallen from a higher estate, some few thousand years ago, but that he has existed from eternity, in a constant progress toward his present lofty position; and now we have the authentic records of the most ancient and civilized people in the world—the people of India—reaching back for millions of years before the Mosaic cosmogony, and allowing ample time for the development of the noble savage into the cultivated philosopher. These records have every mark of truth, giving minute details of events, and histories of successive lines of princes; and, moreover, record the principal astronomical facts of the successive periods—eclipses, comets, positions of stars, &c.—which attest their veracity. Henceforth, the Hebrew records must hide their heads. Neither as poetry nor history can they pretend to compare with the Vedas.”

The Hindoo Shasters were accordingly, for a time, in high repute, among people who knew very little about them. Even Dr.

Adam Clarke was so far led away with the spirit of the age, as to pollute his valuable commentary by the insertion of the *Gītāgovinda*, after the Chaldee Targum on the Song of Solomon; where the curious reader can satisfy himself as to the scientific value of such Pantheistic dotings. By the infidels of Britain and America they were appealed to as standard works, of undoubted authority; and hundreds, who declared that it was irrational credulity to believe in the Bible, risked their souls on the faith of the Vedas, *of which they never had read a single sentence!*

Now, when we remember that these veracious chronicles reach back through *maha yugs* of 4,320,000 years of mortals, a thousand of which, or 4,320,000,000, make a *kalpa*, or one day of the life of Brahma, while his night is of the same duration, and his life consists of a hundred years of such days and nights, about the middle of which period the little span of our existence is placed;—that among the facts of the history, are the records of the seven great continents of the world, separated by seven rivers, and seven chains of mountains, four hundred thousand miles high (reaching only to the moon); of the families of their kings, one of whom had a hundred sons, another only ten thousand, another sixty thousand, who were born in a pumpkin, nourished in pans of milk, reduced to ashes by the curse of a sage, and restored to life by the waters of the Ganges;—and that among the astronomical observations by which the accuracy of these extraordinary facts is confirmed, are accounts of deluges, in which the waters not only rose above the tops of earth's mountains, but above the seven inferior and three superior worlds, *reaching even to the Pole Star**—we may well wonder at the faith which could receive all this as so true, that on the strength of it they rejected the miracles of the Bible as false. Even Voltaire ridiculed these stories.

But a visionary man, named Baillie, calculated the alleged observations backwards, and found them sufficiently correct to satisfy him that all the rest of the story was equally true. It never seems to have occurred to him, that if he could calculate eclipses *backwards*, so could the Hindoos. It is just as easy to calculate an eclipse, or the position of a planet, backwards, as forwards. If I watch the motion of the hands of a clock accurately, and find that the little hand moves over the twelfth of a circle every hour, and

* Duff's India, 127.

the large hand around the circle in the same time, and that the large hand, now at noon, covers the little one, I can calculate that at sixteen minutes and a quarter past three it will nearly cover it again ; but then, it is just as easy to count that the two hands were covered at sixteen minutes and a quarter before nine that morning, or that they were exactly in line at 6 A. M. If my clock would keep going at the same rate for a thousand years, I could predict the position of the hands at any hour of the 29th of March, of the year 2857 ; but it is evident that the very same calculation applied the other way would show the position that the hands would have had a thousand years ago, or five thousand years ago, just as well. And if I were to allege that my clock was made by Tubal Cain, before the flood, and for proof of the fact declare, that on the first of January, 3857, B. C., at 6 o'clock, P. M., I had seen the two hands directly in line, and some wisecrackers were to calculate the time, and find that at that hour the hands ought to have been just in that position, and conclude thence that I was undoubtedly one of the antediluvians, and the clock no less certainly a specimen of the craft of the first artificer in brass and iron, the argument would be precisely parallel to the infidel's argument from the Tirvalore Tables, and the astronomy of the Vedas.

But suppose my clock ran a little slow : say half a minute in the month, or so ; or that it was made to keep siderial time, which differs by a little from solar time, and that I did not know exactly what the difference was ; it is evident that on a long stretch of some hundreds or thousands of years, I would get out of my reckoning, and the hands would not have been in the positions I had calculated. Now, this was just what happened with the Brahmins and their calculations. The clock of the heavens keeps a uniform rate of going, but they made a slight mistake in the counting of it ; and so did their infidel friends. But our modern astronomers have got the true time, set their clocks, and made their tables by it ; and on applying these tables to the pretended Hindoo observations, find that they are all wrong, and that no such eclipses as they allege ever did, or possibly could have happened in our solar system.* So the Hindoo astronomy is now consigned to the same tomb with the Hindoo chronology and cosmogony, except when a missionary, on the banks of the Ganges exhibits it to the pupils of his English

* Connection of the Physical Sciences, p. 83.

school, as a specimen of the falsehoods which have ever formed the swaddling bands of Pantheism; or when some Louisiana planter astonishes a Yankee schoolmaster in search of employment, with an exhibition of the profound philosophy sheltered among the cane-brakes.

Failing in the attempt to substitute Brahminism for Christianity, infidels beat a retreat from India, and went down into Egypt for help. Here they made prodigious discoveries of the scientific and religious truths believed by the worshipers of dogs and dung-beetles, recorded upon the coffins of holy bulls, and the temples sacred to crows and crocodiles. The age was favorable for French discoveries.

Napoleon and his savans cut out of the ceiling of a temple, at Dendera, in Egypt, a stone covered with uncouth astronomical, astrological, and hieroglyphic figures, which they insisted was a representation of the sky at the time the temple was built; and finding a division made between the signs of the Crab and the Lion, and marks for the Sun and Moon there, they took it into their heads that the Sun must have entered the Zodiac at that spot, on the year this Zodiac was made; and calculating back, found that must be at least seventeen thousand years ago. Hundreds of thousands visited the wonderful antediluvian monument, in the National Library, in Paris, where it had been brought; and where infidel commentators were never wanting to inform them that this remarkable stone proved the whole Bible to be a series of lies. A professor of the University of Breslau published a pamphlet, entitled *Invincible Proof that the Earth is at least ten times older than is taught by the Bible*. Scores of such publications followed, and for forty years infidel newspapers, magazines, and reviews, kept trumpeting this great refutation of the Bible. From these it descended to the vulgar, with additions and improvements; and it is now frequently alleged as proving that "ten thousand years before Adam was born, the priests of Egypt were carving astronomy on the pyramids." There is scarcely one of my French or German readers who has not heard of it.

It did not shake the skeptic's credulity in the least that no two of the savans were agreed, by some thousands of years, how old it was—that they could not tell what the Egyptian system of astronomy was—and that none of them could read the hieroglyphics which explained it. Whatever might be doubtful, of one thing they were

all perfectly sure: that it was far older than the creation. But in 1832 the curious Egyptian astronomy was studied, and it appeared that the Sun and Moon were so placed on the Zodiac to mark the beginning of the year there; and the dividing line fenced off one-half of the sky under the care of the Sun, while the other was placed under the Moon's patronage. Then it was discovered that the positions of the stars were represented by the pictures of the gods whose names they bore—Jupiter, Saturn, &c.—and by calculating the places of these pictures back, it was found that this Zodiac represented their places in the year of our Lord 37: the year of the birth of Nero, a great temple-builder and repairer. Finally, Champollion learned to read the hieroglyphics, and the names, surnames, and titles of the emperors Tiberius, Claudius, Nero, and Domitian, were found on the temple of Denderah; and on the portico of the temple of Esneh, which had been declared to be a few thousand years older than that of Denderah, the names of Claudius and Antoninus Pius; while the whole workmanship and style of building have satisfied all antiquarians that these buildings were erected during the declining days of art in the Roman Empire. The Roman title, *autocrat*, engraved on the Zodiac itself, attests its antiquity to be not quite two thousand, instead of seventeen or twenty-seven thousand years.

But, not satisfied with merely demolishing the batteries of infidelity, astronomy has been employed to ascertain the dates of numbers of events recorded on Egyptian monuments to have happened to one or other of the Pharaohs, "beloved of Ammon, and brother of the Sun," when such a star was in such a position. Mr. Poole has spent years in gathering such inscriptions, and in calculating the dates thus furnished. The astronomer royal, at Greenwich, Mr. Airy, has reviewed the calculations, and finds them correct. Wilkinson, the great Egyptologist, agrees with their conclusions. And the result is, that *the astronomical chronology of the Egyptian monuments sustains the Bible Chronology*.* Geology comes forward to confirm the testimony of her elder sister, and assures us that the alleged vast antiquity of the Egyptian monuments is impossible, as it is not more than 5,000 years since the soil of Egypt first appeared above water, as a muddy morass.† The learned Adrian Balbo thus sums up the whole question: "No

* Poole's *Horæ Egyptiacæ*.

† Henri L'Egypte Pharonique.

monument, either astronomical or historical, has yet been able to prove the books of Moses false; *but with them, on the contrary, agree, in the most remarkable manner, the results obtained by the most learned philologists, and the profoundest geometricians.**

2. To the second objection—That astronomers have discovered stars whose light must have been millions of years traveling to this earth, and that consequently these stars must have existed millions of years ago, and therefore the Bible makes a false declaration when it says that the universe was created only some six or seven thousand years ago—I reply by asking, *Where does the Bible say so?*

“What,” says our objector, “is not that the good old orthodox doctrine of Christians and commentators? Do they not unanimously denounce geologists and astronomers as heretics, for asserting the vast antiquity of the earth?”

We shall see presently that no such unanimity of denunciation has ever existed, and that some of the most ancient and learned Christian commentators taught the antiquity of the earth, from the Bible, before geology was born. But that is not the question before us just now. We are not asking what the good old orthodox doctrine of Christians, or the unanimous opinion of commentators may have been, but what is the reading of the Bible—*What does this book say?*—not, “What does somebody think?”

“Well,” replies our objector, “does not the Bible say, in the first of Genesis, that God created the heavens and the earth in six days, and Adam on the sixth; and are not chronologists agreed that that was not more than seven thousand years ago, at the very utmost?”

If the Bible had said that God created the heavens and the earth in six days, and that the end of that period was only seven thousand years ago, it would by no means follow that the beginning of it was only a few hours before that; for every Bible reader knows, that the most common use of the word *day*, in scripture, is to denote, not a period of twenty-four hours, but a period of time which may be of various lengths.† In this very narrative, (Gen. 2: 5) it is used to denote the whole period of the six days’ work: “In the day the Lord God made the earth and the heavens.” Does it mean just twenty-four hours there? In the first of Genesis, its duration is defined to consist of “the evening and the morning.” Before our infidel chronologist finds out the Bible date of creation, he must be

* Atlas Ethnographique, Eth. I.

† See Cruden’s Concordance, Art. *Day*.

able to tell us *of what length was the evening which preceded the first morning*, and with it constituted the first day? God has of set purpose placed stumbling blocks for scoffers at the entrance and the exit of the Bible, as a rebuke to pride and vain curiosity.* He nowhere says that the first of the six days of Genesis was the *first* day, absolutely, of the earth's existence. And lest any one should think so, from the use of the ordinal adjective *first*, he does not use that word; but while each of the other days is called "day second," "day third," &c., the first of the series is distinguished by the cardinal numeral, as "day one;" literally, "*And evening was and morning was day one.*" The first day and the last day are hidden from man.

But if our objector had read the Bible attentively, he would have seen that it *does not say that God created the heavens and the earth in six days*. Before it begins to give any account of the six days' work, it tells us of a previous state of disorder; and going back beyond that again, it says, "*In the beginning*, God created the heavens and the earth." It is as self-evident that this *beginning* was before the six days' work, as that the world must have existed before it could be adjusted to its present form. How long before, the Bible does not say, nor does the objector pretend to know. It may have been as many millions of years as he assigns to the stars, or twice as many, for any thing he knows to the contrary. He must have overlooked the first two verses of the Bible, else he had never made this objection; which is simply a blunder, arising from incapacity to read a few verses of Scripture correctly.

But it is replied, "Does not the Bible say, in the fourth commandment, 'In six days the Lord made heaven, and earth, and the sea, and all that in them is,' &c.?" True. But we are speaking just now of a very different work: the work of *creation*. If any one does not know the difference between *create* and *make*, let him turn to his dictionary, and Webster will inform him that the primary literal meaning of *create* is, "To produce: to bring into being, from nothing; to cause to exist." The example he gives to illustrate his definition is this verse, "In the beginning God *created* the heavens and the earth." But the primary meaning of *make* is, "To compel: to constrain;" thence, "to form of materials;" and he illustrates the generic difference between these two words by a

* Dan. 12: 10. Job, 38: 4. Col. 2: 18.

quotation from Dwight: "God not only *made*, but *created*: he not only made the work, but the materials." Both words are as good translations of the Hebrew originals, *bra*, and *oshe*, as can be given.

If any of my readers has not a dictionary, he can satisfy himself thoroughly as to the different meanings of these two words, and of their equivalents in the original Hebrew, by looking at their use in his Bible. Thus, he will find *create* applied to the creation of the heavens and the earth, in the beginning, when there could have been no pre-existent materials to make them from; unless we adopt the Atheistic absurdity, of the eternity of matter—that is to say, *that the paving-stones made themselves*.* Then it is applied to the production of animal life—v. 21—which is not a product or combination of any lifeless matter, but a direct and constant resistance to the chemical and mechanical laws which govern lifeless matter: "God created great whales, and every living creature that moveth."† Next it is applied to the production of the human race, as a species distinct from all other living creatures, and not derived from any of them. "God *created* man in his own image."‡ It is in like manner applied to all God's subsequent bestowals of animal life and rational souls, which are directly bestowed by God, and are not in the power of any creature to give. "Thou sendest forth thy spirit: they are *created*." "Remember now thy *Creator*, in the days of thy youth."§ In all these instances, the use of the word determines its literal meaning to be what Webster defines it: "To bring into being from nothing."

The metaphorical use of the word is equally expressive of its literal meaning, for it is applied to the production of new dispositions of mind and soul utterly opposite to those previously existing. "Create in me a clean heart;" which God thus explains: "A new heart will I give you, and a new spirit will I put within you; and I will take away the stony heart out of your flesh, and I will give you an heart of flesh."|| The Hebrew word *bra* has as many derivative meanings as our English word *create*; as we speak of "creating a peer," "long abstinence creating uneasiness," &c.; but these no more change the primitive idea in the one case than in the other.

* Tract 23, *Did the World make itself?*

† Gen. 1: 21.

‡ Gen. 1: 27.

§ Psalm 104: 30. Eccl. 12: 1.

|| Psalm 51: 10. Ezekiel, 36: 26.

From this word *create*, the Bible very plainly distinguishes the words *make* and *form*, using them as the complement of the former, in many passages which speak of both creation and making. Thus, man was both created and made. His life and soul are spoken of as a creation; his body as a formation from the dust; his deputed authority over the earth also implies a primal creation, and subsequent investiture; and so both terms are applied to it. So the words *make* and *form* are applied to the production of the bodies of animals from pre-existing materials, while animal life is ever spoken of as a product of creative power. But, that we may see that these processes are distinct, and that the words which express them have distinctive meanings, *the Author of the Bible takes care to use them both* in reference to this very work, in such a way that we cannot fail to perceive he intends some distinction, unless we suppose that he fills the Bible with useless tautologies. For instance, "On the seventh day, God rested from all his work, which God *created* and *made*." "These are the generations of the heavens and the earth, when they were *created*; in the day the Lord God *made* the earth and the heavens." "But now thus saith the Lord that *created* thee, Jacob, and he that *formed* thee, O Israel." "For thus saith the Lord, that *created* the heavens, God himself, that *formed* the earth, and *made* it; He hath established it; He *created* it not in confusion; he *formed* it to be inhabited." * In all these passages *creation* is clearly distinguished from *formation* and *making*, if the Bible is not a mass of senseless repetitions. If *create*, and *make*, and *form*, have all the same meaning, why use them all in the same verse. These, and many similar passages, show that the Bible teaches the work of *creation*—calling things into being—to be previous to and distinct from the work of *making*—forming of materials already created.

Between these two widely different processes—of the original creation of the universe, and the subsequent preparation of the habitable earth, by the six days' work—two intervening periods are indicated by scripture, both of indefinite length. The first of these is that which intervened between the original creation and the period of disorder indicated in the second verse. The second is that disordered period during which the earth continued without form and void.

* Gen. 2: 1-5. Isa. 43: 1-7; 45: 1, 2.

That original chaos which some would find in the second verse, never had any existence, save in the brains of atheistic philosophers. It is purely absurd. God never created a chaos. Man never saw it. The crystals of the smallest grain of sand, the sporules of the humblest fungus on the rotten tree, the animalculæ in the filthiest pool of mud, are as orderly in their arrangements, as perfect after their kind, and as wisely adapted to their station, as the angels before the throne of God. And as man never saw, so he has no language to describe a state of original disorder; for every word he can use implies a previous state of regularity; as, disorder tells of order dissolved; confusion of previous forms melted together. So the poets who have tried to describe a chaos have been obliged to represent it as the wreck of a former state.

Both the Bible language and the Bible narrative correspond to the philosophy and philology of the case; for, by the use of the substantive verb, in the past tense, implying progressive being, according to the usual force of the word in Hebrew, we are told literally, "the earth *became* without form and void." God did not create it so, but after it was created, and by a series of revolutions not recorded, it became disordered and empty. The Holy Spirit takes care to explain this verse, by quoting it in Jer. 4: 23, as the appropriate symbolical description of the state of a previously existing and regularly constituted body politic, reduced to confusion by the calamities of war. Again, he explains both the terms used in it in Isa. 34: 11, by using them to describe, not the rude and undigested mass of the heathen poet, but the wilderness condition of a ravaged country, and the desolate ruins of once beautiful and populous cities: "He will stretch out upon it the line of *confusion*, and the stones of *emptiness*." In both these cases the previous existence of an orderly and populous state is implied. And finally, we are expressly assured, that the state of disorder mentioned in the 2d verse of Gen. 1, was not the original condition of the earth—Isaiah, 45: 18—where the very same word is used as in Gen. 1: 2, "He created it not, *teu, disordered, in confusion*." The period of the earth's previous existence in an orderly state, or that occupied by the revolutions and catastrophes which disordered its surface, is not recorded in scripture.

The second period is that of disorder, which must have been of some duration, more or less, and is plainly implied to have been of considerable length, in the declaration that "the Spirit of the

Lord moved"—literally *was brooding* (a figure taken from the incubation of fowls)—"upon the face of the waters." But no portion of Scripture gives any intimation of the length of this period.

If, then, astronomers and geologists assert that the earth was millions, or hundreds of millions of years in process of preparation for its present state, by a long series of successive destructions and renovations, and gradual formations, there is not one word in the Bible to contradict that opinion; but, on the contrary, very many texts which fully and unequivocally imply its truth. But, as the knowledge of the exact age of the earth is by no means necessary to any man's present happiness, or the salvation of his soul, it is no-where taught in the Bible. God has given us the Stars to teach us Astronomy, the Earth to teach us Geology, and the Bible to teach us Religion, and neither contradicts the other.

This is no new interpretation, evoked to meet the necessities of modern science. The Jewish Rabbins, and those of the early Christian fathers who gave any attention to criticism, are perfectly explicit in recognizing these distinctions. The doctrine of the creation of the world only six or seven thousand years ago, is a product of monkish ignorance of the original language of the Bible. But Clemens of Alexandria, Chrysostom, and Gregory Nazianzen, after Justin Martyr, teach the existence of an indefinite period between the creation and the formation of all things. Basil and Origen account for the existence of light before the Sun, by alleging that the Sun existed, but that the chaotic atmosphere prevented his rays from being visible till the first day, and his light till the third.* Augustine, in his first homily, represents the first state of the earth, in Gen. 1: 1, as bearing the same relation to its finished state, that the seed of a tree does to the trunk, branches, leaves, and fruit. Horsley, Edward King, Jennings, Baxter, and many others, who wrote during the last two centuries, but before the period of geological discovery, explained the 2d verse substantially as did Bishop Patrick, a hundred and fifty years ago. "How long all things continued in confusion, we are not told. *It might have been, for any thing that is here revealed, a very great while.*"†

Some persons, however, have supposed that the chaos of the second verse succeeded immediately to the creation of the first, and

* Wiseman's Lectures on the Connection of Science and Revealed Religion, 1—297.

† Commentary on Gen. 1: 2.

that the six days' work in like manner followed that instantaneously, or at least after a very brief interval, because the records of these cycles are connected by the word *and*, which they think, precludes the idea of any lengthened periods or intervals. But the slightest reflection upon the meaning of the word will show that *and* cannot of itself be any *measure* of time, its use being to indicate merely *sequence* and *connection*. When used historically, it always implies an interval of time; for there can be no succession without an interval; but the length of that interval must be determined from the context, or some other source. A very cursory perusal of the Bible, either in English or Hebrew, will show that very often in its brief narratives, the interval indicated by *and*, and its Hebrew originals, is a very long time. The descent of Jacob and his children into Egypt is connected with the record of their deaths, in the very next verse, by this word *and*, which thus includes nearly the lifetime of a generation. That event, again, is connected with a change of dynasty in Egypt, and the oppression and multiplication of the Israelites there, recorded in the next verse, by the same word, *vai, and*; while the period over which it reaches was over two hundred years.* So in the brief record of the family of Adam, after reciting the birth of Seth, the historian adds, in the next verse, "And to Seth also was born a son, and he called his name Enos;" while the interval thus indicated by the word *and* was a hundred and five years. The command to build the ark, recorded in the last verse of the sixth chapter of Genesis, is connected with the command to enter into it, in the first verse of the seventh chapter, by this same word *and*, although we know, from the nature of the case, that the interval required for the construction of such a huge vessel must have been considerable; and from the third verse of the sixth chapter, we learn that it was a hundred and twenty years. So the births and deaths of the antediluvians are connected by this same word, *and*, throughout the fifth chapter of Genesis; while the interval, as we see from the narrative, was often eight or nine hundred years. The descent of the Holy Spirit upon Christ, to qualify him for judging the world, is connected with the actual discharge of that office, in the destruction of Antichrist by the breath of his mouth, by this word *and*,† although the interval has been over eighteen hundred years. If

* Exo. 1: 5, 8.

† Isa. 11: 3, 4.

in the records of the generations of mortal men, the word *and* is customarily employed as a connecting link in the narrations of events separated by an interval of hundreds of years, it is quite consistent with the strictest propriety of language to employ it, with an enlargement proportioned to the duration of the subject of discourse, to connect intervals of millions, in the narrative of the generations of the heavens and the earth.

The Bible uniformly attributes the most remote antiquity to the work of creation. So far from supposing man to be even approximately coeval with it, the emphatic reproof of human presumption is couched in the remarkable words, "Where wast thou, when I laid the foundations of the earth?" In majestic contrast with the frail human race, Moses glances at the primeval monuments of God's antiquity, as though by them he could form some faint conceptions even of eternity, and sings, "Before the mountains were brought forth, or ever thou hadst formed the earth and the universe, even from everlasting to everlasting thou art God." *

The very word here used, *the beginning*, is in itself an emphatic refutation of the notion that the work of creation is only some six or seven thousand years old. Geologists have been unable to invent a better, and have borrowed from the Bible this very form of speech, to designate those strata beyond which human knowledge cannot penetrate—the *primary formations*. But, with far greater propriety, the Holy Spirit uses this word with regard to ages, compared with which the utmost range of the astronomer's or geologist's reasonings is but as the tale of yesterday. For this word, in Bible usage, marks the last promontory on the boundless ocean of eternity: the only positive word by which we can express the most remote period of past duration. It is not a date—a point of duration. It is a period—a vast cycle. It has but one boundary: that where creation rises from its abyss. Created eye has never seen the other shore. It is that vast period which the Bible assigns to the manifestations of the Word of God, "whose goings forth have been of old, from everlasting." Carrying our astonished gaze far back beyond the era of his creature, man, and ages before the "all things" that were made by him, the Bible places this *beginning* on the very shore of the eternity of God, when it declares, "*In the beginning* was the Word, and the Word was with God, and

* Psalm 90.

the Word was God."* Thus, both by the use of the imperfect tense, *was*, denoting continued existence, and by the connection of this *beginning* with the eternity of the Word, does the Bible teach us to dismiss from our thoughts all narrow views of the period of duration employed in manifesting the glory of the self-existent Eternal One, and to raise our conceptions to the highest possible pitch, and then feel that far beyond the grasp of human calculation lies that *beginning*, which includes the years of the right hand of the Most High, and is even used as one of the names of the eternal: "I AM THE BEGINNING *and the Ending*, saith the Lord, *Who is, and Who was, and Who is to come*—THE ALMIGHTY."†

In another Bible exhibition of the eternity of the Son of God, we are conducted from that *beginning*, downward, stage by stage, from those periods of remote antiquity prior to the formation of water, the upheaval of the mountains, the alluvial deposits, the subsidence of the existing sea basins, and the adornment of the habitable parts of the earth, to that comparatively recent event, the existence of the sons of men. Our ideas of the eternity of the love of Christ are thus enhanced, by the vastness of the ages which stretch out between the human race and that beginning when he was, as it were, "The Lamb slain from before the foundations of the world."

"The Lord possessed me *in the beginning of his way*,

"*Before his works of old.*

"I was set up from everlasting,

"*From the beginning, or ever the earth was.*

"When there were no depths, I was brought forth ;

"When there were no fountains, abounding with water ;

"Before the mountains were settled,

"Before the hills, was I brought forth ;

"While as yet he had not made the earth, nor the fields,

"Nor the highest part of the dust of the world.

"When he prepared the heavens, I was there ;

"When he described a circle upon the face of the deep ;

"When he established the clouds above ;

"When he strengthened the fountains of the deep ;

"When he gave to the sea his decree,

"That the waters should not pass his commandment ;

"When he appointed the foundations of the earth :

* John, 1 : 1.

† Rev. 1 : 4.

"Then was I by him, as one brought up with him ;
 "And I was daily his delight, rejoicing always before him :
 "Rejoicing in the habitable parts of his earth ;
 "And my delights were with the sons of men.* "

Let the geologist, then, penetrate as deeply as he can into the profundities of the foundations of the earth, and bring forth the monuments of their hoary antiquity: we will follow with the most unfaltering faith, and receive with joy these proofs of his eternal power and Godhead. Let the astronomer raise his telescope, and reflect on our astonished eyes the light which flashed from morning stars, on the day of this earth's first existence, or even the rays which began to travel from distant suns, millions of years ere the first morning dawned on our planet: we will place them as jewels in the crown of Him who is the bright and morning star. They shall shed a sacred luster over the pages of the Bible, and give new beauties of illustration to its majestic symbols. But never will geologist penetrate, much less exhaust, the profundity of its mysteries, nor astronomer attain, much less explore, the sublimity of that beginning revealed in its pages; for eye hath not seen, nor ear heard, nor hath it entered into the heart of man to conceive, either the antiquity, or the nature, or the duration of the things which God hath prepared for them that love him. Human science will never be able to reach the Bible era of creation. It is placed in an antiquity beyond the power of human calculation, in that sublime sentence with which it introduces mortals to the Eternal: "*In the beginning, God created the heavens and the earth.*"

3. The third objection we have named is equally unfounded. *The Bible no-where teaches that the sky is a solid sphere, to which the stars are fixed, and which revolves with them around the earth.* I know that infidels allege that the word *firmament*, in the first chapter of Genesis, conveys this meaning. It does not. Neither the English word, nor the Hebrew original, has any such meaning. As to the meaning of the English word, I adhere to the dictionary. Infidels must not be allowed to coin uncouth meanings for words, different from the known usage of the English tongue, for which Webster is undeniable authority. His definition of *firmament* is, "The region of the air; the sky, or heavens. In scripture, the word denotes an expanse—a wide extent; for such is the significa-

* Proverbs, 8: 22.

tion of the Hebrew word, coinciding with *regio*, *region*, and *reach*. The original, therefore, does not convey the sense of solidity, but of stretching—extension. The great arch or expanse over our heads, in which are placed the atmosphere and the clouds, and in which the stars *appear* to be placed, and are *really* seen.” The word *firmament*, then, conveys no such meaning as the infidel alleges, to any man who understands the English tongue.

No Hebrew speaking man or woman ever did, or ever could understand the original Hebrew word *regio* in any other sense than that of *expanse*; for the verb from which it is formed means to extend, or spread out, as even the English reader may see, by a few examples of its use, in the following passages of scripture; where the English words by which the verb *rego* is expressed, are marked in italics. “Then did I beat them small as the dust of the earth, and did stamp them as the mire of the street, and *did spread them abroad*.” “The goldsmith *spreadeth it over* with gold.” “Thus saith the Lord: He that created the heavens, and stretched them out; He that *spread forth* the earth.” “I am the Lord, that maketh all things; that stretcheth forth the heavens alone, and *spreadeth abroad* the earth by myself.” “To him that *stretcheth out* the earth above the waters.” “The censers of these sinners against their own souls, let them *make them broad* plates, for a covering for the altar. *And they were made broad*.” “Hast thou with him *spread out* the sky;” * or, in Humboldt’s elegant rendering, “the pure ether, *spread* (during the scorching heat of the south wind) as a melted mirror over the parched desert.” † We might refer to the opinions of lexicographers, all unanimous in ascribing the same idea to the word; but the authorities given above are conclusive. The meaning, then, of the Hebrew word rendered firmament, is so utterly removed from the notion of compactness, or solidity, or metallic or crystalline spheres, that it is derived from the very opposite: the fineness or tenuity produced by processes of expansion. Science has not been able to this day to invent a better word for the regions of space than the literal rendering of the original Hebrew word used by Moses—the *expanse*.

The inspired writers of the New Testament, though they found the world full of all the absurdities of the Greek philosophy, and

* 2 Sam. 22: 43. Isa. 40: 19; 44: 24; 42: 5; Ps. 136: 6. Numbers, 17: 38. Job, 37: 18.

† Cosmos, v. 2, p. 60.

their Greek translations of the Bible continually using the word *stereoma*, which expressed these notions, *never used it* but once, and then not for the sky, but for the *steadfastness of faith* in Christ. Their thus using it once, shows that they were acquainted with the word, and its proper meaning, and that their disuse of it was intentional; while their disuse of it, and choice of another word to denote the heavens, proves decisively that they disapproved of the absurdity which it was understood to express. Now, whether you account for this fact by admitting their inspiration, or by alleging that they drew their language from the Hebrew original, and not from the Greek translation, it is in either case perfectly conclusive as to the scriptural meaning of the word. Indeed, it is marvellous how any man who is familiar with his Bible, and knows that the scriptures usually describe the sky by metaphors conveying the very opposite ideas to those of solidity or permanence—as, “stretched out like a curtain,” “spread abroad like a tent to dwell in,” “folded up like a vesture,” and the like—should allow himself to be imposed on by the impudent falsehood of Voltaire, that the Bible teaches us that the sky is a solid metallic or crystal hemisphere, supported by pillars.

Those beautiful figures of sacred poetry in which the universe is represented as the palace of the Great King, adorned with majestic “pillars,” and “windows of heaven,” whence he scatters his gifts among his expectant subjects in the courts below, have been grossly abused for the support of this miserable falsehood. We are assured, that so ignorant was Moses of the true nature of the atmosphere, and of the origin of rain, that he believed and taught that there was an ocean of fresh water on *the outside* of this metal hemisphere, which covered the earth like a great sugar-kettle, bottom upwards, and was supported on pillars; and at the bottom of the ocean were trap-doors, to let the rain through; which trap-doors in the metal firmament are to be understood, when the Bible speaks of the windows of heaven. Now, the bottom of an ocean is an odd place for windows, and a trap-door is rather a strange kind of watering-pot; and if Moses put the ocean of fresh water on the *outside* of his metal hemisphere, he must have changed his notions of gravity materially from the time he planned the brazen hemisphere for the tabernacle, which he turned mouth upwards, and put the water in the *inside*.

While such writers are quite clear about the metal trap-doors

and the ocean, they have not yet fully fathomed the construction and arrangement of the pillars. Whether the Bible teaches that they are "pillars of salt," like Lot's wife, or of flesh and blood, like "James, Cephas, and John," or such "iron pillars and brazen walls" as Jeremiah was against the house of Israel—whether they consisted of "cloud and fire," like the pillar Moses describes in the next book as floating in the sky over the camp of Israel, or are "pillars of smoke," such as ascend out of the wilderness—whether they are those "pillars of the earth which tremble" when God shakes it, or "the pillars of heaven which are astonished at his reproof"—whether they are the pillars of the earth and its anarchical inhabitants, which Asaph bore up, or are composed of the same materials as Paul's "pillar and basis of the truth," or the pillars of victory which Christ erects "in the temple of God"—they have not yet decided. Whether the Hebrews understood these pillars to be arranged on the outside of the metal hemisphere, and if so, to imagine any use for them there; or in the inside, and in that case whether they kept the sky from falling upon the earth, or only supported the earth from falling into the sky, these learned men are by no means agreed. Having trampled the pearl into fragments, their attempts to combine them into another shape are more amusing than successful; and it is hard to say which of the seven opinions ascribed to the Bible by infidel commentators is least probable. That opinion, however, will, doubtless, after more vigorous and protracted rooting, be discovered and greedily swallowed amid grunts of satisfaction: an appropriate reward of such laborious stupidity.

The absurdities of the Greek philosophers were not drawn from the Bible. Had the Greeks read the Bible more, they would have preserved the common sense God gave them a great deal longer, and would not, while professing themselves to be wise, have become such fools as to adore blocks and stones, and dream of metal firmaments. But they turned away their ears from the truth, and were turned unto such fables as infidels falsely ascribe to the Bible. A thousand years before the cycles and epicycles of the Ptolemaic astronomy were invented, and before learned Greeks had learned to talk nonsense about crystal spheres, and trap-doors in the bottom

* Gen. 19: 26. Exo. 13: 20; 33: 10. Jere. 1: 18. Gal. 2: 7. Song, 3: 6. Job, 9: 6; 26: 11. Ps. 75: 3. 1 Tim. 3: 15. Rev. 3: 12.

of celestial oceans, the writers of the Bible were recording those conversations of pious philosophers concerning stars, and clouds, and rain, from which Galileo derived the first hints of the causes of barometrical phenomena. The origin of rain, its proportion to the amount of evaporation, and the mode of its distribution by condensation, could not be propounded by Humboldt himself with more brevity and perspicuity than they are expressed by the Idumean philosopher: "He maketh small the drops of water; they pour down rain according to the vapor thereof, which the clouds do drop and distil upon man abundantly. Also, can any understand the spreadings of the clouds, or the noise of his tabernacles."* The cause of this rarefaction of *cold water*—the clouds are not steam—is as much a mystery to the British Association as it was to Elihu; and even were all the mysteries of the electrical tension of vapors disclosed, "the balancings of the clouds" would only be more clearly discovered to be, as the Bible declares, "the wonderful works of Him who is perfect in wisdom." But the gravity of the atmosphere, the comparative density of floating water, and its increased density by discharges of electricity, were as well known to Job and his friends as they are to the wisest of our modern philosophers. "He looketh to the ends of the earth, and seeth under the whole heaven, *to make weight to air, and regulate waters by measure, in his making a law for the rain, and a path for the lightning of thunder.*"† Three thousand years before the theory of the trade winds was demonstrated, or before Maury had discovered the rotation and revolutions of the wind-currents, it was written in the Bible, "The wind goeth towards the south, and turneth about to the north. *And the wind returneth again, according to his circuits.*"‡

Thousands of years before Newton, Galileo, and Copernicus were born, Isaiah was writing about the "orbit of the earth," and its insignificance in the eyes of the Creator of the host of heaven.§ Job was conversing with his friends, on the inclination of its axis, and its equilibrium in space: "He spreadeth out the north over the empty space, and hangeth the earth upon nothing."||

The "waters above the heavens," which the Holy Ghost harmonizes with other Cosmical bodies—Sun, Moon, Fixed Stars, and

* Job, 36: 27.

† Job, 28: 24—literal reading.

‡ Eccl. 1: 6.

§ Isa. 40th ch.

|| Job, 26: 7.

distant Galaxies, Heavens of Heavens—in his arrangement of cho-risters for the grand anthem of the universe, have no reference to, or connection with our earth. They refer to such phenomena as are indicated by the atmosphere loaded with vapors of Mercury and Venus, the “polar snows” and “greenish seas” of Mars, the trade winds of Jupiter, and the rings of Saturn, “composed of a fluid a little denser than water,” in our own system, and to analogous collections of water in more distant firmaments.*

So far from entertaining the least idea of the waters of the atmosphere being contained either on the outside or the inside of a metal or solid hemisphere, the writers of the Bible never once use, even figuratively, any expression conveying it. On the contrary, the well known scriptural figures for the fountains of the rain, are the soft, elastic, leathern waterskins of the east, “the bottles of the clouds,” or the wide, flowing shawl or upper garment wherein the people of the east are accustomed to tie up loose, scattering substances.† “He bindeth up the waters in his thick cloud, and the cloud is not rent under them.” “Who hath bound the waters in a garment;” “As a vesture thou shalt change them;” or the loose, flowing curtains of a royal pavilion; or the extended covering of a tent: “his pavilion around him were dark waters, and thick clouds of the skies;” “the spreadings of the clouds, and the noise of his tabernacles;” “he spread a cloud for a covering.”‡ Instead of the notion of a single ocean, the “number of the clouds” is proverbial in the scriptures || for a multitude; and in direct opposition to the permanence of a vast metallic arch, the chosen emblems of instability and transitoriness, and of the utmost rapidity of motion, suitable even for the chariot of Jehovah, are selected from the heavens.§

In short, there is not the slightest vestige of any foundation in scripture for the notions long afterwards introduced by the Greek philosophers. Yet Christians, who have read these passages of scripture over and over again, allow themselves to give heed to infidels, who have not, asserting, without the shadow of proof, that

* Psalm 148. Herschell's Outlines, § 509, 510, 512. Annual of Scientific Discovery, 1842, p. 376.

† Ruth, 3 : 15.

‡ Job, 38 : 37 ; 26 : 8 ; 38 : 9 ; 36 : 29. Ps. 105 : 39 ; 77 : 17.

§ Isa., 44 : 22. Jere., 4 : 13. Job, 38 : 37. Prov., 30 : 4.

§ Eccl., 11 : 4. Ps. 104 : 3. Mat. 24 : 30.

Moses taught absurdities which were not invented for a thousand years after his death. The Bible gives hints of many profound scientific truths; it teaches no absurdities; *and, instead of countenancing the notion that the sky is a solid metal hemisphere, it teaches, both literally and figuratively, directly the contrary.*

4. We come now to the fourth objection, that the Bible represents God as creating light before the Sun, which is supposed to be an absurdity, and as creating the Sun, Moon, and Stars only two days before Adam. This is the only Astronomical objection to the Bible account of creation which has any foundation of scripture statement to rest upon; but we shall soon see that here, also, infidels have not done themselves the justice of reading the Bible with attention.

I have already corrected that confusion of ideas and carelessness of perusal which confounds the two distinct and different words, *create* and *make*, so as to make both mean the same thing. God *created* the heavens, as well as the earth, *in the beginning*: a period of such remote antiquity that, in Bible language, it stands next to eternity. The Sun and Moon then came into being. Through what changes they passed, or when they were endowed with the power of giving light to the universe, the Bible no-where declares; but on the fourth day, it tells us, they *were made lights*, or, literally, *light-bearers*, to this earth. The comparatively insignificant place allotted to the stars, in the narrative of this earth's formation, corresponds, with the strictest propriety, to the nature of the discourse; which is not an account of the system of the universe, but of the process of preparation of this earth for the abode of man. Compared with the influences of "the two great light-bearers," those of the stars are very insignificant; since the Sun sheds more light and heat on the earth in one day, than all the fixed stars have done since the creation of Adam. It is evident, from the words, that Moses is not speaking either of their original creation, or of their actual magnitude, but of their appointment and use in relation to us, when he says, "And God made two great light-bearers (the greater light-bearer to rule the day, and the lesser light-bearer to rule the night), and the stars. And God set them in the firmament of the heavens, to give light upon the earth, and to rule over the day and the night, and to divide the light from the darkness."

Neither here nor elsewhere does he say they were *created* at this

time, but in all the subsequent references uses other words, such as "prepared," "divided," "made," "appropriated," "made for ruling," "gave:" a studious omission, which shows that the author of the Bible had not forgotten how long it was since he had called them into being. *The Bible, then, does not say that God created the Sun and Stars only two days before Adam.*

Another correction of careless Bible reading is necessary, that we may be satisfied about what the Bible *does not say*, ere we begin to defend what it does say. The Bible does not say, nor lead us to believe, that the darkness spoken of in the second verse of the first of Genesis had existed from eternity. Darkness is not eternal: it requires the exercise of creative power for its production; but light is the eternal dwelling of the Word of God.* The darkness which brooded over our earth, at the period of its formation, is very plainly described in the Bible as a temporary phenomenon, incident to and necessary for the birth of ocean. It is confined by the adverb of time, *when*, to the period of condensation, upheaval, and subsidence, occupied by the birth of that gigantic infant, "*when* it burst forth as though it had issued from the womb; *when* I made the cloud a garment for it, and thick darkness a swaddling band for it, and broke up for it my decreed place, and set bars and doors."† The Sun may have shone for millions of years before upon the earth, or might have been shining with all his brilliance at that very time, while not a single ray penetrated the thick darkness of the vapors in which earth was clothed. But whether or not, darkness must, from its very nature, be limited, both in space and time. To speak of infinite and eternal darkness is as unscriptural as it is absurd. The source of light is Uncreated and Eternal.‡

Further—if my readers are not tired with these perpetual corrections of careless reading and mistaken meaning—the light called into existence in the third verse of the first chapter of Genesis is as evidently a different word from *the two lights* spoken of in the fourteenth verse, as the singular is different from the plural; and the thing signified by it is as distinct from the things spoken of in the fourteenth verse, as the abstract is from the concrete: as, when I say of the first, "light travels 195,000 miles per second," but

* Isa. 45: 7. 1 John, 1: 5, Dan. 2: 22. 1 Tim. 6: 16.

† Job, 38: 9, 10. Literally, *In my making, &c.*

‡ Rev. 21: 23; 22: 5. Isa. 60: 19.

mean a totally distinct subject when I say, "Extinguish the lights." The Hebrew words are even more palpably different, the word for *light*, in the third verse, being *aur*, while the words for *the lights*, in the fourth days' work, are *maurt* and *at emaur*: words as distinct in shape and sense as our English words, *light* and *the lighthouses*.

The locality of the light of the third verse is, moreover, wholly different from that of the light-bearers of the fourteenth verse. That was placed on earth—these in heaven. It was of the earth alone the writer was speaking, in the second verse; the earth alone is the subject of the following verses. It was the darkness of earth that needed to be illuminated; but there is not the remotest hint, in any portion of scripture, that any other planet or star was shrouded in gloom at this time. But, on the contrary, we are most distinctly informed that the wonders which God was performing in this world at that very time were distinctly visible amidst the cheerful illumination of other orbs, "when the morning stars sang together, and all the sons of God shouted for joy," * as this earth emerged from its temporary darkness. It was not from the light of heaven, but out of this darkness of earth, that God, who still draws the lightning's flash from the black thunder-cloud, commanded the light to shine.† And it was upon this earth, and not throughout the universe, that it produced alternate day and night. To extend this command for the illumination of the darkened earth, so as to mean the production of light in general, and the lighting of the most distant telescopic, and even invisible stars—which are neither specified in the command itself, nor by any necessity of language or scripture implied in it, but, on the contrary, excluded, by the express scripture declarations of the pre-existence of light, and of morning stars—is an outrage alike against all canons of criticism, laws of grammar, and dictates of common sense. The command, "Let there be light," had respect to this earth only.

The Bible does represent this earth as illuminated at a time when the Sun was not visible from its surface—perhaps not visible at all. Now, if any one will undertake to scoff at the Bible for speaking of light without sunshine, or of the sun shining upon a dark earth—as infidels abundantly do—we demand that he tell us,

* Job, 38: 7.

† 2 Cor. 4: 6.

What is light, and how is it connected with the Sun? If he can not, let him cease to scoff at matters too high for him.

If he can tell, he knows that the retardation of Encke's comet, which every year falls nearer and nearer the Sun, has discovered the existence of an attenuated ether in the expanse or firmament; and that the experiments of Arago on the polarization of light have finally demonstrated, that our sensation of light is exerted by a series of vibrations or undulations of this fluid.* He will then be able to perceive the propriety with which the Author of light and of the Bible speaks, not of *creating* light, as if it were a material substance, but of *forming* or commanding its display. And he will be better able to comprehend the beauty and scientific propriety with which he selected the active participle of the verb *to flow*, as the name for the undulations of this fluid; for the primary meaning of the Hebrew verb *ar* is *to flow*, or, when used as a noun, *a flood*. "It shall be cast out and drowned, as by the *flood* of Egypt."† And of the like import are the nouns, *iar* and *aur*, formed from it. "Who is this that covereth up like *a flood*—whose waters are moved as the rivers."‡ The philosopher, even though he be a skeptic, will cease to mock the Bible when he reads there, that 6000 years ago its author termed light *the flowing—the undulation*. "In the words of the 'Son of God,' and 'the Son of Man,' no less than in his works, with all their adaptation to the circumstances of the times and persons to whom they were originally delivered, are things inexplicable—concealed germs of an infinite development, reserved for future ages to unfold.¶" To the man of learning and reflection, this progressive fullness and unfathomable depth of the Scripture, is a most conclusive proof that it was dictated by him in whom are hid all the treasures of wisdom and knowledge.

But the ignorant scoffers—the great majority—will mock on, and speak evil of the things they know not. Their mockery is founded on two assumptions, which they believe to be irrefutable: that the Sun is the only possible source of light to the earth; and that it is impossible for the Sun to exist without illuminating the earth. Unless they can *prove* both these assumptions to be true, they can

* Somerville's Connection of the Physical Sciences, Sec. 19—23.

† Amos, 8 : 8.

‡ Jer. 46 : 7. Gen. 41 : 1—18. See Parkhurst's Hebrew Lexicon, sub voce.

¶ Neander.

not prove the Bible account of creation to be false, nor even show it to be impossible. Neither of these assumptions can possibly be proved true; for none of them can explore the universe, to discover the sources of light, nor put the Sun through every possible experiment, to discover that his light is an inseparable quality. The only thing infidels can truly allege against the Bible account of the origin of light is, *their ignorance of the process*. The argument is simply this: "God could not cause light without sunshine, *because I don't know how he did it*. Nor can I understand how the Sun shone on a dark earth; therefore, it is impossible."

These arguments from ignorance need no other answer than the questions, Do you know how the Sun shines at all? Is your ignorance the measure of God's wisdom?

But I shall demonstrate the utter falsehood of both these assumptions, by showing the actual existence of many sources of light besides the Sun, and the perfect possibility of the existence of the Sun without sunshine, and of sunshine without any light reaching the earth. Thus, both the alleged *impossibilities* upon which the argument against the truth of the Bible is based will be removed, and the gross ignorance of natural science displayed by professedly scientific scoffers at the Bible, exposed.

Light, so far from being solely derived from the Sun, exists in, and can be educed from, almost any known substance. Even children are familiar with the light produced by the friction of two pieces of quartz; and no one needs to be informed how light may be produced by the combustion of inflammable substances. But the number of these substances is far greater than is generally supposed, and light can be produced by processes to which we do not generally apply the idea of burning. Resins, wool, silks, wood, and all kinds of earths and alkalies, are capable of emitting light in suitable electrical conditions; so that the surface of our earth may have been a source of light in past ages, as it even now is * near the poles and the equator, flashing its Aurora Borealis and Aurora Australis, and sending out its belts of Zodiacal light (which is now ascertained to be a telluric phenomenon, like Saturn's ring†), far into the surrounding darkness. Further, the metallic bases of all the earths are highly inflammable, and a brilliant flame can be produced by the combustion even of water. All the metals can

* Cosmos, vol. 1, p. 196.

† Annual of Scientific Discovery, 1856.

be made to flash forth lightnings, under suitable electric and magnetic excitements, and the crystals of several rocks give out light during the process of crystallization. Thousands of miles of the earth's surface must once have presented the lurid glow of a vast furnace of melted granite. Even at a far later era of its history, it may have shone with a luster little inferior to that of the Sun; for lime—of which unknown thousands of miles of its strata consist—when subjected to a heat much less than that produced by contact with melted granite or lava, emits a brilliant white light, of such intensity that the eye cannot support its luster.* Even now, the copper color of the moon during an eclipse shows us that the earth is a source of light.† The mountains on the surface of Venus and the Moon, and the continents and oceans of Mars, attest the existence of upheaval and subsidence, and of volcanic fires, capable of producing such phenomena, and of course of sources of light in those planets, such as exist on the earth. We know, then, most certainly, that there are many other bodies capable of producing light besides the Sun. That God could command the light to shine out of darkness, and convert the very ocean into a magnificent illumination, the following facts clearly prove. “Capt. Bonnycastle, coming up the Gulf of St. Lawrence, on the 7th of September, 1826, was roused by the mate of the vessel, in great alarm, from an unusual appearance. It was a starlight night, when suddenly the sky became overcast, in the direction of the high land of Cornwallis County, and an instantaneous and intensely vivid light, resembling the Aurora, shot out of the hitherto gloomy and dark sea, on the lee bow, which was so brilliant that it lighted every thing distinctly, even to the mast-head. The light spread over the whole sea, between the two shores, and the waves, which before had been tranquil, now began to be agitated. Captain Bonnycastle describes the scene as that of a blazing sheet of awful and most brilliant light. A long and vivid line of light, superior in brightness to the parts of the sea not immediately near the vessel, showed the base of the high, frowning, and dark land abreast; the sky became lowering, and more intensely obscure. Long tortuous lines of light showed immense numbers of large fish, darting about as if in consternation. The topsail yard and mizen boom were lighted by the

* Johnson's Turner's Chemistry, § 160.

† Cosmos, vol. 1, p. 196. Nicholl's Solar System, 184.

glare, as if gas-lights had been burning directly below them; and until just before day-break, at four o'clock, the most minute objects were distinctly visible." *

The other assumption, that the Sun could not possibly have existed without giving light to the earth, is contradicted by the most familiar facts. The earth and each of the planets might have been, and most probably were, surrounded by a dense atmosphere, through which the Sun's rays could not penetrate. It is not at all necessary to prove that such was the fact. I am only concerned to prove the *possibility*; for the infidel's objection is founded on the presumed *impossibility* of the co-existence of a dark earth and a shining sun. Any person who has ever been in Pittsburg, Glasgow, or the manufacturing districts of England, and has seen how the smoke of even a hundred factory chimneys will shroud the heavens, can easily comprehend how a similar discharge, on a larger scale, from the thousands of primal volcanoes,† would cover the earth with the pall of darkness. By the eruption of a single volcano, in the island of Sumbawa, in 1815, the air was filled with ashes, from Java to Celebes, darkening an area of more than 200,000 square miles; and the darkness was so profound in Java, three hundred miles distant from the volcano, that nothing equal to it was ever witnessed in the darkest night.‡ Those who have witnessed the fogs raised on the Banks of Newfoundland, in the Gulf of St. Lawrence, and in the Bay of Fundy, by the mingling of currents of water of slightly different temperatures, can be at no loss to conceive the density of the vapors produced by the boiling of the sea around and over the multitude of volcanoes || which have produced the countless *atolls* of the Pacific, and by the vast upheavals of thousands of miles of heated rocks of the primary formations into the beds of primeval oceans. While such processes were in progress, it was impossible but that darkness should be upon the face of the deep.§ Even now, a slight change of atmospheric density and temperature would veil the earth with darkness. We see this substantially done every time that God "covereth the light with clouds, and commandeth it not to shine by the cloud that cometh betwixt," although the Sun continues to shine with all his

* Connection of Physical Sciences, 288.

† Cosmos, vol. 1, p. 250.

‡ Lyell's Principles of Geology, 465.

|| Cosmos, vol. 1, p. 250.

§ Cosmos, vol. 1, pp. 198, 216.

usual splendor. To understand how there may be day without sunshine, we need only conceive the whole earth temporarily enveloped in the vapors of the unastronomical atmosphere of Peru, thus described by Humboldt:

“A thick mist obscures the firmament in this region for many months, during the period called *tiempo de la garua*. Not a planet—not the most brilliant stars of the southern hemisphere—are visible. It is frequently almost impossible to distinguish the position of the moon. If, by chance, the outline of the Sun’s disc be visible during the day, it appears devoid of rays, as if seen through colored glasses. According to what modern geology has taught us to conjecture concerning the ancient history of our atmosphere, its primitive condition in respect to its mixture and density *must have been unfavorable to the transmission of light*. When we consider the numerous processes which, in the primary world, may have led to the separation of the solids, fluids, and gases around the earth’s surface, the thought involuntarily arises, *how narrowly the human race escaped being surrounded with an untransparent atmosphere*, which, though not greatly prejudicial to some classes of vegetation, would yet have completely veiled the whole of the starry canopy. All knowledge of the structure of the universe could then have been withheld from the enquiring spirit of man.”* The Sun, then, may have shone with all his brilliancy, for thousands of years, and a single ray never have penetrated the darkness upon the face of the deep.

But there is another well ascertained fact, which equally refutes the infidel’s assumption. There is no necessary connection between the Sun and sunshine. The Sun may have existed for thousands of years as the center of the solar system, and the planets may have revolved around him, as they do now, while so far from shedding a single ray of light on any of them, he may have derived a feeble illumination from their beams. Modern science has discovered the astonishing fact, that at this moment the globe of the Sun is not a source of light to itself, much less to us; that, in fact, light is no more connected with the Sun than with a candlestick; and that the Bible description of the Sun as a *light-bearer*, expresses the results of the latest researches of Herschell, Encke, and Arago.

* Cosmos, vol. 3, p. 139.

The Sun consists mainly of a dark nucleus, like the body of the earth, and other planetary globes, surrounded by two atmospheres, of enormous depths, the one nearest to him being cloudy and dense, like our atmosphere, while the loftier stratum consists of those dazzling phosphorescent zephyrs that bestow light and heat on so many surrounding spheres. This phosphorescent atmosphere, or *photosphere*, as it is called, is by no means inseparably attached to the surface of the nucleus, or in any degree stable, but is subject to extensive fluctuations, and the most violent commotions; being frequently swayed and whirled aside, laying bare the surface of the dark globe beneath, for thousands of miles, to the observation of astronomers, and even to the naked eye. So far from being necessarily a source of light to the universe, the Sun's light is but very faintly visible on his own globe. "We approach the question" (of the inhabitability of the Sun,) says Sir David Brewster, "with the certain knowledge that the Sun is not a red-hot globe, but that its nucleus is a solid, opaque mass, receiving very little light and heat (only seven rays out of a thousand) from its luminous atmosphere." Outside of this photosphere another gaseous, transparent atmosphere has been discovered.*

Any one of these facts is fatal to the assumption, that the Sun could not exist without shining, and that his light must have necessarily been visible through the universe ever since the creation of the heavens and the earth. His dark, solid nucleus may have existed for millions of years, as the center of gravity, around which the solar system revolved, and have given out no more light or heat than it does this day, or than the dark suns do around which Procyon and Sirius now revolve.† His luminous photosphere may either not have existed at all, or its gases not have been inflamed or electrically excited into luminosity. No man can adduce the shadow of a proof that the Sun shone nine minutes before the first recorded observation—namely, that recorded by the Author of the Bible, in the first of Genesis. The Sun's outer atmosphere may have been as dense as his inner one: in which case this radiance of his photosphere would have been as effectually veiled as a gas lamp by a London fog. And the simple possibility of any of these

* Nicholl's Solar System, 174. Herschell's Outlines, § 389. More Worlds than One, 98. Cosmos, vol. 4, p. 372.

† Cosmos, vol. 3, p. 253.

events, or indeed of any contingency by which the Sun could exist as a dark body, is quite sufficient to vindicate the Bible from the charge of contradicting the facts of science, and teaching impossibilities. But we will go further, and show that so far from light being an essential property of suns, it is a very variable attribute, and that in several cases suns have ceased, and others begun to shine, before our eyes.

The fixed stars are self luminous bodies, similar to our Sun, only immensely distant from us. Their numbers, magnitudes, and places, are known and recorded. But new stars have frequently flashed into view, where none were previously seen to exist; and others have gradually grown dim and disappeared, without changing their place; and a few, which had disappeared, have re-appeared in the same spot they formerly occupied; while others have changed their color since the era of astronomical observation. In short, there is no permanence in the heavens, any more than on the earth; but a perpetual progress and change is the destiny of suns and stars, of which the most conspicuous indication is the variability of their powers of giving light, of which I shall transcribe a few instances.

“On the 11th of November, 1572, as the illustrious Danish astronomer, Tycho, was walking through the fields, he was astonished to observe a new star in the constellation Cassiopea, beaming with a radiance quite unwonted in that part of the heavens. Suspecting some delusion about his eyes, he went to a group of peasants, to ascertain if they saw it, and found them gazing at it with as much astonishment as himself. He went to his instrument, and fixed its place, from which it never after appeared to deviate. For some time it increased in brightness—greatly surpassed Sirius in luster, and even Jupiter. It was seen by good eyes in the day time: a thing which happens only to Venus, under very favorable circumstances; and at night it pierced through clouds which obscured the rest of the stars. After reaching its fullest brightness, it again diminished, passed through all degrees of visible magnitude, assuming in succession the hues of a dying conflagration, and then finally disappeared.” “It is impossible to imagine any thing more tremendous than a conflagration that could be visible at such a distance.” *

Astronomers now recognize a class of such *Temporary Stars*,

* Nicholl's Solar System, 188. Connection of Physical Sciences, 363.

which have appeared from time to time in different parts of the heavens, blazing forth with extraordinary luster, and after remaining awhile, apparently immovable, have died away, and left no trace.* Twenty-one of such appearances of new suns are on record.†

Still further, many familiar suns have ceased to shine. "On a careful re-examination of the heavens, *many stars are found to be missing.*"‡ "There are many well authenticated cases of the disappearance of old stars, whose places had been fixed with a degree of certainty not to be doubted. In October, 1781, Sir William Herschell observed a star, No. 55 in Flamstead's Catalogue, in the constellation Hercules. In 1790 the same star was observed by the same astronomer, but since that time no search has been able to detect it. The stars 80 and 81 of the same catalogue, both of the fourth magnitude, have likewise disappeared. In May, 1828, Sir John Herschell missed the star numbered 42, in the constellation Virgo, which has never since been seen. Examples might be multiplied, but it is unnecessary."§

The demonstration of the variableness of the light-giving power of suns is completed by the phenomena of the class emphatically called *variable stars*; though the best astronomers are now agreed that *variability, and not uniformity*, in the emission of light, is the general character of the stars.¶ But the variations which occur before our eyes impress us more deeply than those which require centuries for their completion. Sir John Herschell has observed and graphically described one such instance of variation of light.

"The star Eta Argus has always hitherto been regarded as a star of the second magnitude; and I never had reason to regard it as variable. In November, 1837, *I saw it, as usual.* Judge of my surprise to find, on the 16th of December, that *it had suddenly become a star of the first magnitude*, and almost equal to Rigel. It continued to increase. Rigel is now not to be compared with it. It exceeds Arcturus, and is very near equal to Alpha Centauri, being, at the moment I write, the fourth star in the heavens, in the order of brightness.¶ It has since passed through several variations of luster. Humboldt gives a catalogue of twenty-four of such stars, whose variations have been recorded."

* Herschell's Outlines, § 827.

† Cosmos, vol. 8, p. 210.

‡ Herschell's Outlines, § 832.

§ Mitchell's Planetary and Stellar Worlds, 294.

¶ Cosmos, vol. 3, p. 253.

¶ Astronomical Observations, 351.

"A strange field of speculation is opened by this phenomenon. Here we have a star fitfully variable to an astonishing extent, and whose fluctuations are spread over centuries, apparently in no settled period, and with no regularity of progression. What origin can we ascribe to these sudden flashes and relapses? What conclusions are we to draw as to the comfort or habitability of a system depending for its supply of light and heat on such an uncertain source? Speculations of this kind can hardly be termed visionary, when we consider that, from what has been before said, we are compelled to admit a community of nature between the fixed stars and our own Sun; and when we reflect, that geology testifies to the fact of extensive changes having taken place, at epochs of the most remote antiquity, in the climate and temperature of our globe: changes difficult to reconcile with the operation of secondary causes, such as a different distribution of sea and land, but which would find an easy and natural explanation in a slow variation of the supply of light and heat afforded by the Sun himself."* "I cannot otherwise understand alterations of heat and cold so extensive as at one period to have clothed high northern latitudes with a more than tropical luxuriance of vegetation, and at another to have buried vast tracts of Europe, now enjoying a genial climate, and smiling with fertility, under a glacier crust of enormous thickness. Such changes seem to point to causes more powerful than the mere local distribution of land and water can well be supposed to have been. In the slow secular variations of our supply of light and heat from the Sun, *which, in the immensity of time, may have gone to any extent, and succeeded each other in any order, without violating the analogy of siderial phenomena which we know to have taken place*, we have a cause, not indeed established as a fact, but readily admissible as something beyond a bare possibility, fully adequate to the utmost requirements of geology. A change of half a magnitude on the luster of our Sun, regarded as a fixed star, spread over successive geological epochs—now progressive, now receding, now stationary—is *what no astronomer would now hesitate to admit as a perfectly reasonable and not improbable supposition*.†

The most eminent astronomers are perfectly unanimous in their deductions from these facts. They regard *variability as the gen-*

* Outlines, § 830.

† Astronomical Observations, 351.

eral characteristic of suns and stars, our own Sun not excepted. "We are led, says Humboldt, by analogy to infer, that as the fixed stars *universally* have not merely an apparent, but a real motion of their own, so their surfaces or luminous atmospheres are generally subject to those changes (in their "light process") which recur, in the great majority, in extremely long, and therefore unmeasured, and probably undeterminable periods, or which, in a few, recur without being periodical, as it were, by a sudden revolution, either for a longer or a shorter time." And he asks, *Why should our Sun differ from other suns?*

In reference to the extinction of suns, he says: "What we no longer see is not necessarily annihilated. It is merely the transition of matter into new forms—into combinations which are subject to new processes. Dark cosmical bodies may, by a renewed process of light, again become luminous."* In confirmation of the fact adduced in support of this view, by La Place, "that those stars which have become invisible, after having surpassed Jupiter in brilliancy, have not changed their place during the time they continued visible," he adds, "The luminous process has simply ceased. Bessel asserts† that, *"No reason exists for considering luminosity an essential property of these bodies."* And Nicholl sums up the matter in the following emphatic words: "No more is light *inherent* in the Sun than in Tycho's vanished star; and with it and other orbs, a time may come when, through the consent of all the powers of nature, he shall cease to be required to shine. *The womb which contains the Future is that which bore the Past.*"‡

Here, then, we behold astronomy presenting to our observation facts and processes so similar to those which revelation presents to our faith, that all those men who are most profoundly versed in her lore, reasoning solely from the facts of science, and without any reference to the Bible, unanimously conclude that there was such a state of darkness and confusion before our era as the Bible declares—that its causes were most probably such as the Bible implies—and that the sudden illuminating of dark bodies, and their extinction, and even re-illumination, are facts so perfectly well authenticated as matters of observation in regard to other suns, that no reasonable man can hesitate to believe any credible assurance that our Sun has passed through such a process. With what feelings,

* Cosmos, vol. 3, p. 222-232.

† Cosmos, vol. 3, p. 246.

‡ Solar System, 190.

then, are we to regard the ignorance and brazen-faced impudence of men who, in defiance of the most common facts, and in contradiction to the demonstrations of science, blaspheme the God of truth as a teacher of falsehood, because he speaks of light distinct from that of the Sun? Surely, such men are those whom he describes as "having the understanding darkened, being alienated from the life of God, through the ignorance that is in them, because of the blindness of their hearts. In whom the God of this world hath blinded the minds of them that believe not." *

These facts of the sudden kindling of stars, their gradual passage through all the hues of a dying conflagration, and their final extinction and present blackness of darkness, are facts of fearful omen to the enemies of God. They are the original threatenings of Heaven, whence the fearful language of Bible warning is derived. They attest its truth, and illustrate its import.

The favorite theory of the unbeliever is the uniformity of nature. "Where," says he, "is the promise of Christ's coming to judgment; for since the fathers fell asleep, all things continue as they were since the beginning of the world?" But the telescope dispels the illusion, exhibits the course of nature as a succession of catastrophes, displays the conflagration of other worlds, and the extinction of their suns, before our eyes, and asks, *Why should our Sun differ from other suns?* It is not the preacher, but the philosopher, who has turned prophet, when—looking back on the period when the Siberian elephant and rhinoceros were frozen amidst their native jungle, and icebergs visited the plains of India—he proclaims, "*The womb that bore the Past contains the Future.*"

The threatenings of God's word are invested with a mantle of terrible literality by the facts we have been contemplating. Raised at the day of resurrection, in these bodies, and with these senses, and this capability of rejoicing in the light, and shuddering and pining amidst outward gloom, physical darkness will be the terrible prison of those who chose darkness rather than light, because their deeds were evil. The Father of Lights shall withdraw his blessed influences from the hearts, the dwellings, the eyes, of those who say to him, "Depart from us, for we desire not the knowledge of thy ways." The Sun shall cease to vivify God's corn, and wine, and oil, which ungodly men consume upon their lusts. The Moon shall cease to shine upon the robber's toil, and the Stars to illumine

* Eph. 4: 18. 2 Cor. 4: 4.

the adulterer's path. The light of Heaven shall cease to gild the field of carnage, where men perform the work of Hell. In the very midst of your worldliness and business, Unbeliever, when you are in all the engrossment of buying and selling, and planting and building, and marrying and giving in marriage, without warning or expectation, "the Sun shall go down at noon, and the stars shall be darkened in the clear day." As in the warning and example given to the enemies of the Lord in Egypt, thick darkness, that may be felt, shall wind its inevitable chains around you, preventing your escape from the judgment of the great day, and giving you a fearful foretaste of that "blackness of darkness for ever" of which you are now forewarned in the Word of Truth.

"The Sun shall be darkened, and the Moon shall not give her light,

"And the stars shall fall from the heavens,

"And the powers of the heavens shall be shaken ;

"And then shall appear the sign of the Son of Man in the heavens,

"And then shall all the tribes of the earth mourn ;

"And they shall see the Son of Man coming in the clouds of heaven,

"With power and great glory."

"Cast ye the unprofitable servant into outer darkness ;

"There shall be weeping and gnashing of teeth."

"Hear ye, and give ear ; be not proud,

"For the Lord hath spoken.

"Give glory to the Lord, your God,

"Before he cause darkness,

"And before your feet stumble upon the dark mountains ;

"And while ye look for light,

"He turn it into the shadow of death,

"And make it gross darkness."

"I am the light of the world ;

"He that followeth me shall not walk in darkness,

"But shall have the light of life." *

* Matthew, 24 : 29. John, 8 : 12. Jere. 13 : 15. Matt. 22 : 13, and 25 : 30.